NITROXYL (HNO) RELEASING THERAPEUTICS

SUMMARY

The National Cancer Institute''s Laboratory of Comparative Carcinogenesis is seeking statements of capability or interest from parties interested in collaborative research to further develop, evaluate, or commercialize agents that generate HNO in physiological media for therapeutic benefit.

REFERENCE NUMBER

E-019-2010

PRODUCT TYPE

- Therapeutics

KEYWORDS

- nitroxyl
- HNO

COLLABORATION OPPORTUNITY

This invention is available for licensing.

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DESCRIPTION OF TECHNOLOGY

Nitroxyl (HNO) has recently emerged as a prospective pharmacological agent. Studies of the chemistry of HNO have led to an understanding that HNO is vastly different from nitric oxide (NO). HNO displays unique cardiovascular properties and has been shown to have positive effects in failing hearts without changing heart rate, and also has been shown to have beneficial effects in ischemia reperfusion injury. In addition to the observed cardiovascular effects, HNO has shown initial promise in the realm of cancer therapy. HNO has been demonstrated to inhibit a key glycolytic enzyme. Due to the Warburg effect, inhibiting glycolysis is an attractive target for inhibiting tumor proliferation. HNO has recently been shown to inhibit tumor proliferation in mouse xenografts. Additionally, HNO inhibits tumor angiogenesis and induces cancer cell apoptosis.

This technology discloses HNO releasing compounds and methods of treating various diseases with such compounds.

POTENTIAL COMMERCIAL APPLICATIONS

- Potential treatment for cardiovascular disease, ischemia, and cancer.
- Tool to probe the role of HNO in normal physiology and disease states.

COMPETITIVE ADVANTAGES

- Alleviated toxicity associated with chronic NSAID use
- Controlled release of HNO

INVENTOR(S)

David A Wink (NCI), Larry K Keefer (NCI)

DEVELOPMENT STAGE

- Discovery (Lead Identification)

PUBLICATIONS

- Switzer et al, The emergence on nitroxyl (HNO) as a pharmacological agent. Biochim Biophys Acta 2009, 1787, 835-840. PubMed: 19426703
- Keefer LK. Nitric oxide (NO)- and nitroxyl (HNO)-generating diazeniumdiolates (NONOates): emerging commercial opportunities. Curr Top Med Chem. 2005, 5, 625-636. [PubMed: 16101424]

PATENT STATUS

- **U.S. Filed:** U.S. Provisional Application No. 61/315,604 filed 19 Mar 2010

THERAPEUTIC AREA

- Cancer/Neoplasm
- Cardiovascular Systems
- Gastrointestinal